Iskra Sistemi, d.d.

SAU100
Simple Acquisition Unit
User manual

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1 PREFACE

Liability statement

We have checked the contents of this manual to ensure that the descriptions of both hardware and software are as accurate as possible. However, deviations may occur so that no liability can be accepted for any errors or omissions contained in the information given.

The contents of this manual will be checked in periodical intervals, corrections will be made in the following editions.

We reserve the right to make technical improvements without notice.

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Copyright

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Explanation of the symbols

Read the instructions!

Device was tested with 2,5 kV a.c. voltage to check the device insulation.

Device ground terminal.

Warnings

In this paper the following terms are used:

Danger

indicates that death, severe personal injury or substantial property damage will result if proper precautions are not taken.

Warning

indicates that death, severe personal injury or substantial property damage can result if proper precautions are not taken.

Caution

indicates that minor personal injury or property damage can result if proper precautions are not taken. This particularly applies to damage on or in the device itself.

General information

These paper contain the information that is necessary for the proper and safe operation of the described devices. This paper is intended for technically qualified personnel.

Warning!

Hazardous voltage is present inside the device during operation. Disregarding of safety rules can result in severe personal injury or property damage.

Only qualified personnel may work with described devices after being familiar with warnings and safety notices in this paper and other safety regulations.

Warning!

Device must operate completely assembled! Device must be used as described. No modifications of the device should be made.

Warning!

Do not open device while it is energized! Hazardous voltage is present inside the device. Disconnect all connectors before opening!

Warning!

If device is damaged disconnect it from power supply! Send it to the manufacturer for inspection.

Warning!

Connect to earth before attaching power supply!

2 SAU100 SYSTEM

2.1 DESCRIPTION

Devices from SAU100 system are simple aquisition devices which capture 4 digital inputs (DI) and control 3 digital outputs (DO). DIs and DOs informations are accessed via communication.

SAU100 has implemented communication protocol IEC 60870-5-103. It operates as slave device. SAU accepts or responds on following requests:

- reset link
- time synchronization (send / no reply message)
- general interrogation
- data class 1
- data class 2
- general command
- data class 1

Device can be equipped by one or two communication interfaces. That means that SAU100 can be connected to two master devices. When SAU100 receives request on interface1 it also responds to interface1. Interface2 operates the same. Request must be initiated by one master at the time only! In other case SAU100 will not respond (correctly).

Wide power supply voltage allows connection to all common station batteries. Additionaly it can be also connected to standard a.c. voltages.

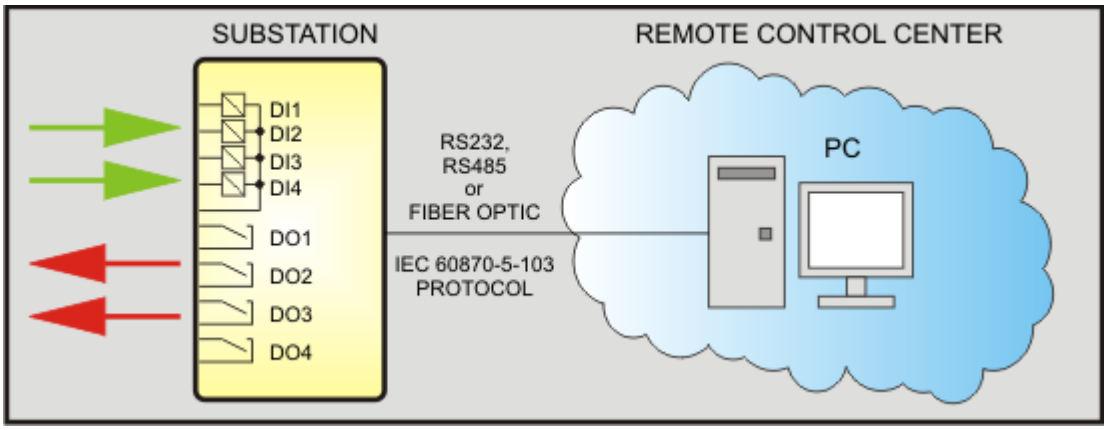
It requires no maintenace. All normaly used connectors, switches and light indicators are accessed at the front side of the device. One light indicator indicates power supply voltage, others indicate communication transfer and IO statuses.

2.2 FEATURES

- Wide range power supply
- Digital input voltage suitable for substation's power supply
- RS232, RS485 or Fiber Optic communication interface
- 4 digital inputs
- 4 dIgital outputs
- DIN 35 rail mount

2.3 TYPICAL APPLICATION

This device is intended for use in cubicles and cabinets in all kinds of power production, transmission and distribution stations where only a few DIs or DOs are needed.



Picture 2.1: Typical application

2.4 HOUSING

Housing of SAU100 system devices is aluminium and intended for mount on standard DIN 35 rail (acc. to DIN EN 50022). Housing is same for all combinations.

2.5 INTENDED USE

Device are intended for use in cubicles and cabinets in all kinds of power production, transmission and distribution stations as well as in industry. It requires no maintenace.

3 DEVICE TYPES

3.1 DEVICE MARKINGS

SAU100 system of devices is modular so many variants of SAU100 device exists:

x - describes that any type. For types description see chapter Ordering.

First mark after „SAU100 /“ declares device's power supply:

Device \ Power supply	30-60 V AC or 38-80 V DC	70-250 V AC or 88-250 V DC
SAU100 / LO.x.x.x	YES	-
SAU100 / HI.x.x.x	-	YES

Second mark declares device's communication interface 1:

Device \ Interface1	RS232	RS485	FO ST	FO SMA
SAU100 / x.**232**.x.x	YES	-	-	-
SAU100 / x.**485**.x.x	-	YES	-	-
SAU100 / x.**FOT**.x.x	-	-	YES	-
SAU100 / x.**FOA**.x.x	-	-	-	YES

Third mark declares device's communication interface 2:

Device \ Interface2	RS232	RS485	FO ST	FO SMA
SAU100 / x.x.**NON**.x	-	-	-	-
SAU100 / x.x.**232**.x	YES	-	-	-
SAU100 / x.x.**485**.x	-	YES	-	-
SAU100 / x.x.**FOT**.x	-	-	YES	-
SAU100 / x.x.**FOA**.x	-	-	-	YES

Fourth mark declares device's digital inputs and outputs:

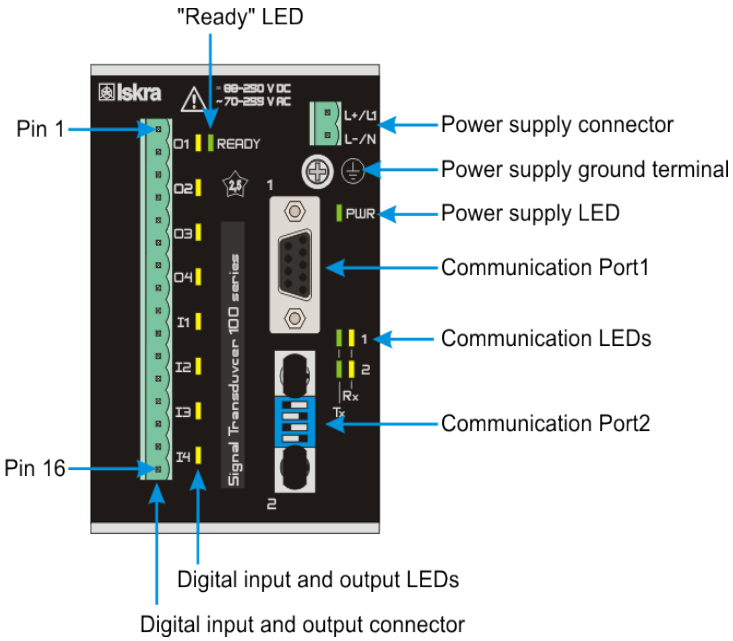
Device \ IOs	4DI (48 V DC), 4DO	4DI (110 V DC), 4DO	4DI (220 V DC), 4DO	4DI (48 VDC), 3DO + READY	4DI (110 V DC), 3DO + READY	4DI (220 V DC), 3DO + READY
SAU100 / x.x.x.**IO4**	YES	-	-	-	-	-
SAU100 / x.x.x.**IO1**	-	YES	-	-	-	-
SAU100 / x.x.x.**IO2**	-	-	YES	-	-	-

Device \ IOs	4DI (48 V DC), 4DO	4DI (110 V DC), 4DO	4DI (220 V DC), 4DO	4DI (48 VDC), 3DO + READY	4DI (110 V DC), 3DO + READY	4DI (220 V DC), 3DO + READY
SAU100 / x.x.x.**IO4R**	-	-	-	YES	-	-
SAU100 / x.x.x.**IO1R**	-	-	-	-	YES	-
SAU100 / x.x.x.**IO2R**	-	-	-	-	-	YES

For further details see chapter „HARDWARE DESCRIPTION“.

3.2 APPEARANCE

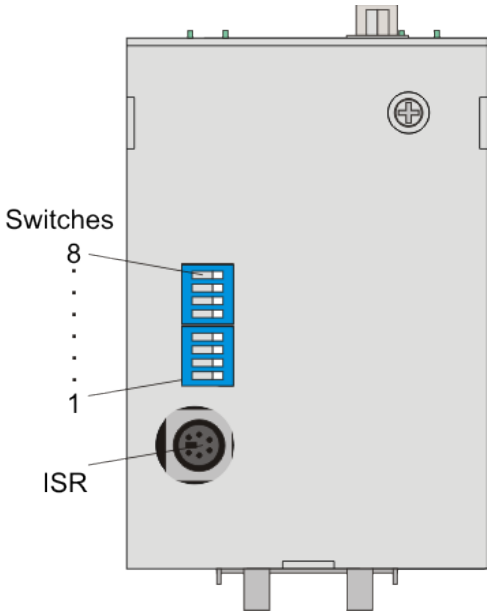
3.2.1 FRONT SIDE OF THE DEVICE



Picture 3.1: SAU100 front view

Types of communication interface connectors depends on device type.

3.2.2 BOTTOM SIDE OF THE DEVICE



Picture 3.2: SAU100 bottom view

For switches and connector description see chapter „SWITCHES AT THE BOTTOM SIDE“.

4 HARDWARE DESCRIPTION

4.1 POWER SUPPLY CONNECTOR

Connector pin table

Phoenix MSTB	1	2
Description	L- , N	L+, L1

For further technical data see chapter „TECHNICAL DATA“.

4.2 COMMUNICATION INTERFACES

Device can have one or two communication interfaces. Activity on communication interfaces are indicated by LEDs for each port. The yellow LED shows activity on receive (Rx) line and the green one shows activity on transmit (Tx) line.

Although SAU100 device can have two interfaces it can communicate only with one at the time. Data is always received and transmited to both interfaces (ports).

4.2.1 RS232 INTERFACE (232)

Valid for devices with RS232 interface.

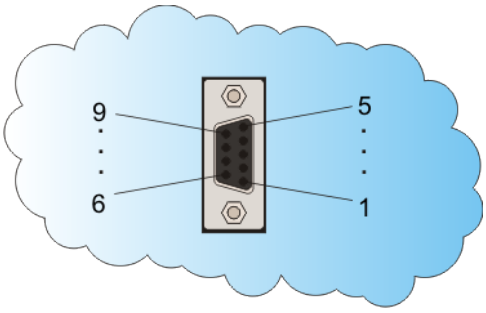
Description

Single, full duplex, RS232 port with DB9 female connector. Supported Rx, Tx and GND pins.

Connector pin table

DB9 F	2	3	5
Description	RX	TX	GND
Direction	IN	OUT	-

For further technical data see chapter „TECHNICAL DATA“.



Picture 4.1: DB9 F connector

Cable

CMU100 / RS232 to PC / RS232

CMU100		Direction	PC	
DB9 F pin	Signal		Signal	DB9 F pin
2	RX	<-------	TX	3
3	TX	------->	RX	2
5	GND	<------->	GND	5

4.2.2 RS485 INTERFACE (485)

Valid for devices with RS485 interface.

Description

Single, galvanically isolated, half duplex, RS485 port with Phoenix 3 pin screw connector. Automatic switch to receive after end of transmission with additional terminating and stabilizating resistors.

Hardware settings

For proper functioning of that board some settings must be done:

- RS485 bus termination and stabilisation
- baud rate

RS485 bus termination and stabilisation

TERMINATION

At high transmission rates or long distance, RS485 bus termination is necessary.

The termination on RS485 bus must be set on both ends of the RS485 bus.

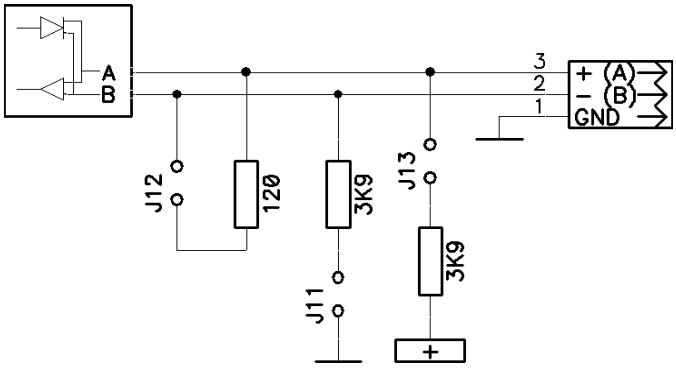
STABILISATION

Some device, to work properly, demands that RS485 must always be in known and valid state. That is, when + (positive) pin is more than 200 mV positive than – (negative) pin. Pins + and – are sometimes marked as A and B. In case that no device on RS485 bus is transmitting or in case of short circuit, there is no voltage difference between those pins and some device do not work correctly.

On this port board so called „true fail-safe“ RS485 chip is used so board works correctly without stabilisation at invalid RS485 bus state. But still switches for stabilisation are provided on port board. **The stabilization on RS485 bus may be set on one device only!**

Switches at the lower side of connector:

Switch	1 (J13)	2 (J12)	3 (J11)
Description	RS485 stabilisation	RS485 termination	RS485 stabilisation



Picture 4.2: RS485 BUS schematic

Switches at the upper side of connector (see lower picture):

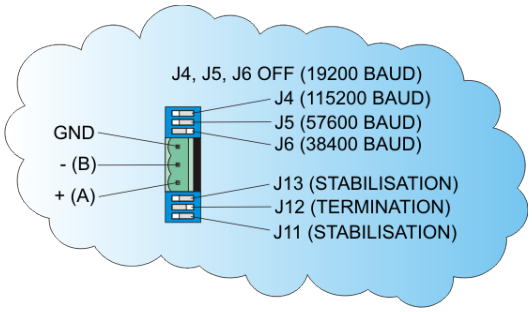
Baud rate

BAUD rate	Switches		
	1 (J4)	2 (J5)	3 (J6)
19200	OFF	OFF	OFF
38400	OFF	OFF	ON
57600	OFF	ON	OFF
115200	ON	OFF	OFF

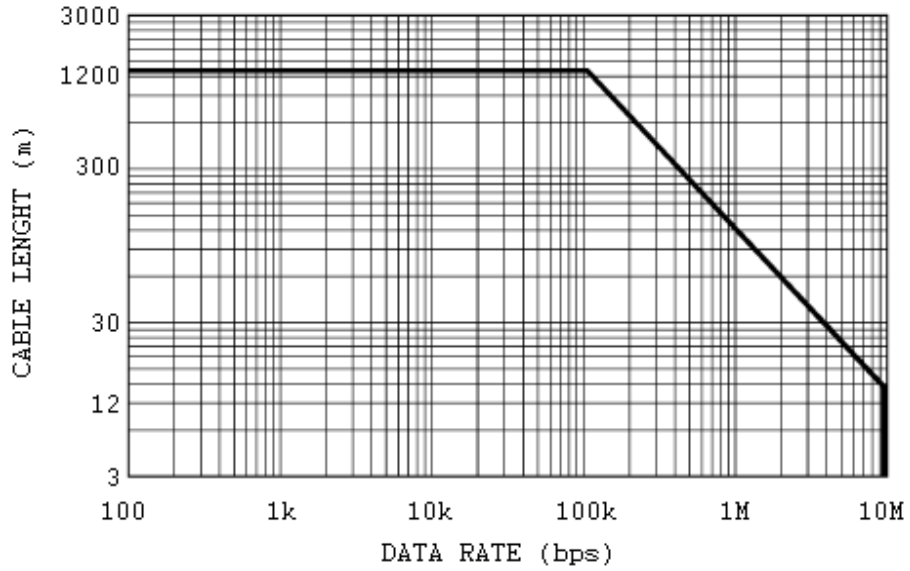
BAUD rate setting MUST be set for 19k2 BAUD!

Connector pin table

MSTB	1	2	3
Description	GND	- (B)	+ (A)



Picture 4.3: RS485 interface board outlook



Picture 4.4: Data rate vs cable lenght

For further technical data see chapter „TECHNICAL DATA“.

4.2.3 FIBER OPTIC INTERFACE (FOT & FOA)

Feature

Fiber optic communication allows longer distances between devices without electromagnetic disturbances. Fiber optic logic can be set to positive or negative logic for transmitter and receiver separatedly. They can be set by DIP switch at the front side of the communication interface.

Description

Single, full duplex, multimode, fiber optic port with ST or SMA connectors (see ordering) with both positive or negative logic.

Hardware settings

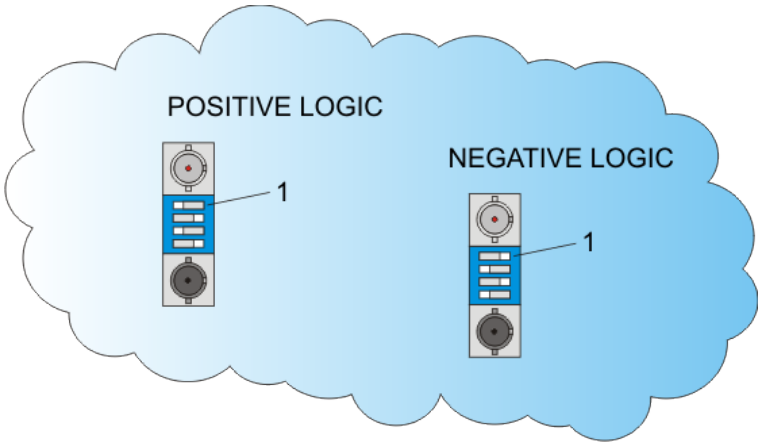
For proper functioning of that board optic logic must be set:

Fiber optic logic

Switch SW1	1	2	3	4
Positive logic	OFF	ON	OFF	ON
Negative logic	ON	OFF	ON	OFF

- Positive logic – light OFF in idle state
- Negative logic – light ON in idle state

It is recommended that positive logic on FO interfaces is used (light OFF in idle state). In other case, if optic loop on one port is broken, communication on other port, also will not work.



Picture 4.5: FO connectors positive and negative logic settings

For further technical data see chapter „TECHNICAL DATA“.

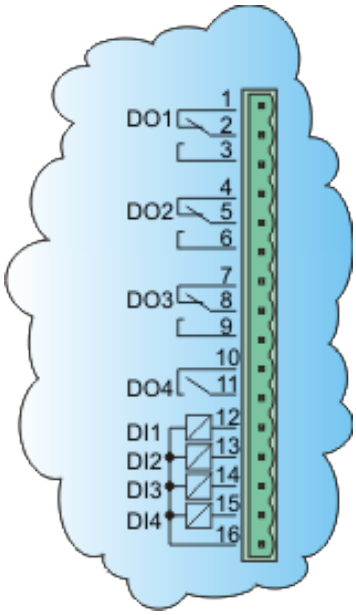
4.3 DIGITAL INPUT AND OUTPUT CONNECTOR

User can choose from following list:

- IO4 – 4 Digital Input (48 V DC), 4 Digital Output board
- IO1 – 4 Digital Input (110 V DC), 4 Digital Output board
- IO2 – 4 Digital Input (220 V DC), 4 Digital Output board
- IO4R – 4 Digital Input (48 V DC), 3 Digital Outputs + 1 „device ready“ DO board
- IO1R – 4 Digital Input (110 V DC), 3 Digital Outputs + 1 „device ready“ DO board
- IO2R – 4 Digital Input (220 V DC), 3 Digital Outputs + 1 „device ready“ DO board

IO connector pin table (all IO board types)

Pin	Description
1	potential free DO1 **N**ormally **C**lose contact pin
2	potential free DO1 **C**ommon pin
3	potential free DO1 **N**ormally **O**pen contact pin
4	potential free DO2 **N**ormally **C**lose contact pin
5	potential free DO2 **C**ommon pin
6	potential free DO2 **N**ormally **O**pen contact pin
7	potential free DO3 **N**ormally **C**lose contact pin
8	potential free DO3 **C**ommon pin
9	potential free DO3 **N**ormally **O**pen contact pin
10	potential free DO4 **N**ormally **O**pen contact pin
11	potential free DO4 **N**ormally **O**pen contact pin
12	DI1 input
13	DI2 input
14	DI3 input
15	DI4 input
16	DIs common GND



Picture 4.6: Digital input and output connector

Digital inputs

Digital inputs are scaned every 0,1 ms. Debounce filter is 20. That means that digital input will be recognized as active, if in all 20 cycles status of digital input will be high.

Digital outputs

Digital outputs 1-3 are controlled by communication. After positive command request, requested digital output will be activated for 500 ms. After that time, digital output will be automaticly returned to its initial state.

Difference between IOx and IOxR board is in operation of first DO (DO1):

- IOx boards **-** On IOx boards DO1 is normal DO. It can be controlled by command send through communication port.
- IOxR boards - On IOxR boards DO1 has ready function. DO1 is energized when device is operating normally. DO1 is deactivated when device has no power or device is not working correctly.

Digital inputs and digital outputs statuses are indicated by LEDs on front side of device.

4.4 READY LED

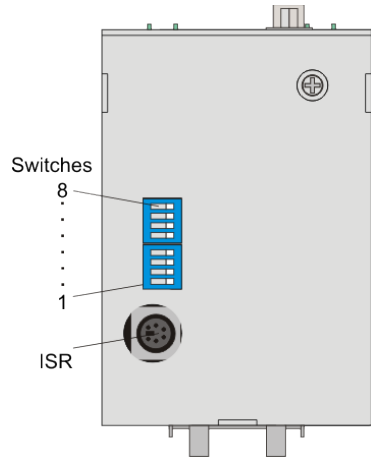
LEDs operation

LED ready signalize when device operates normaly. If power is on and green LED ready:

- blinks or does not light; device does not operate correctly
- lights; device operates normally

4.5 SWITCHES AT THE BOTTOM SIDE

On the bottom side of device are switches for device setting and ISP connector which is intended for upgradeing software. Do not connect anything to that connector.



Picture 4.7: SAU100 bottom view

Switches at the bottom of the device

Switch	1	2	3	4
Description	not used	not used	not used	not used
Position OFF	not used	not used	not used	not used
Position ON	not used	not used	not used	not used
Default position	OFF	OFF	OFF	OFF

Switch	5	6	7	8
Description	not used	not used	not used	not used
Position OFF	not used	not used	not used	not used
Position ON	not used	not used	not used	not used
Default position	OFF	OFF	OFF	OFF

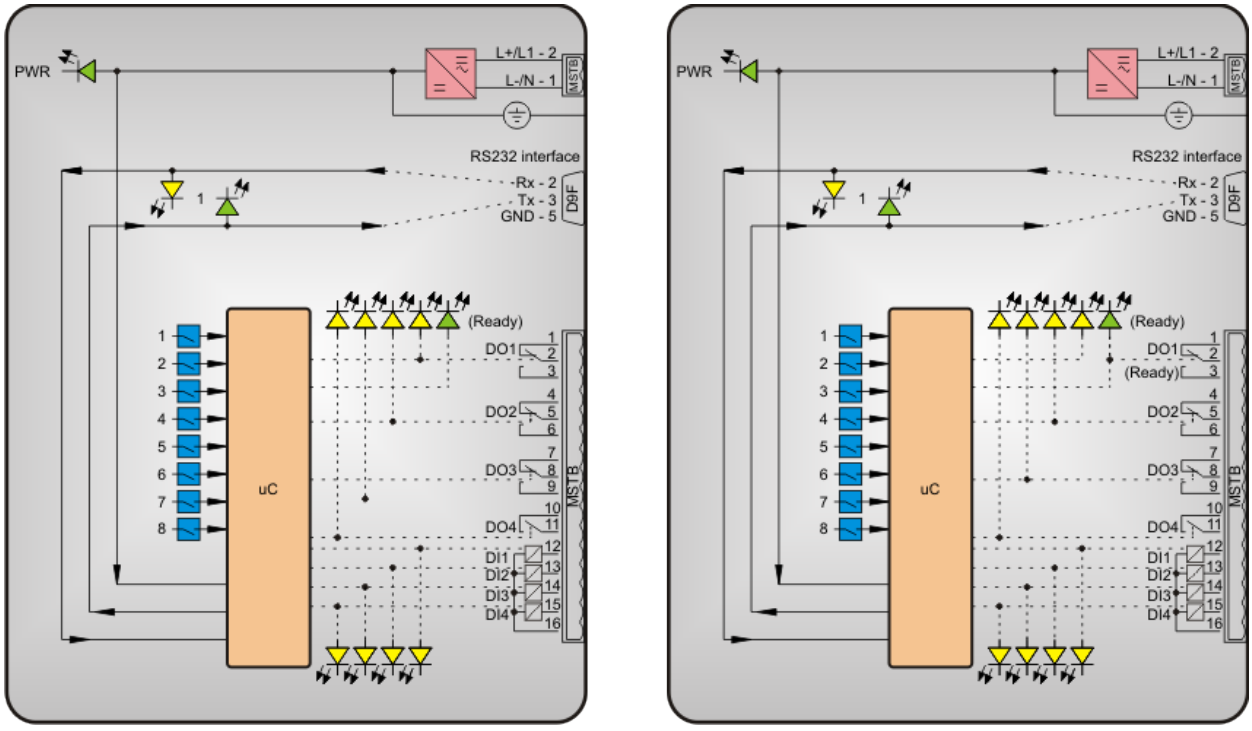
4.6 SCHEMATICS

x - means any type

For types description see chapter Ordering.

Beacuse so many device variants exists, shematics for all types of devices are not drawn.

4.6.1 SAU100/x.232.NON.x



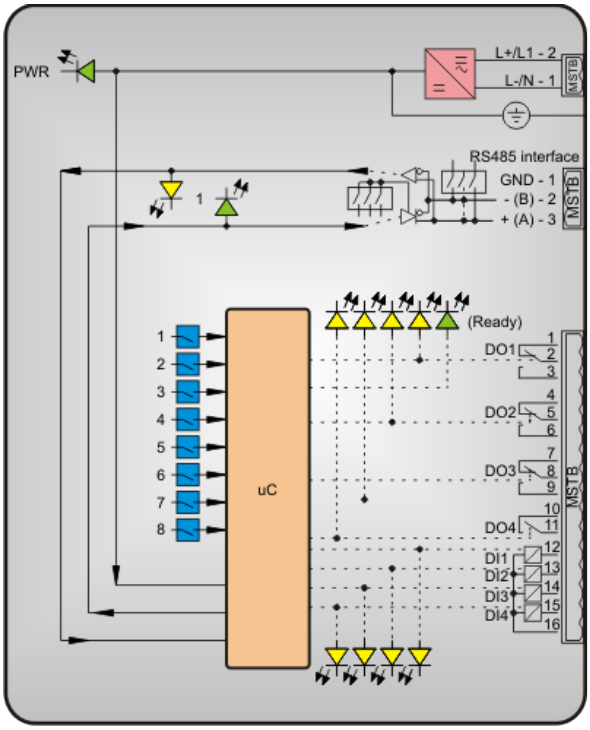
Picture 4.8: (left): SAU100/x.232.NON.IOx schematic
Picture 4.9: (right): SAU100/x.232.NON.IOxR schematic

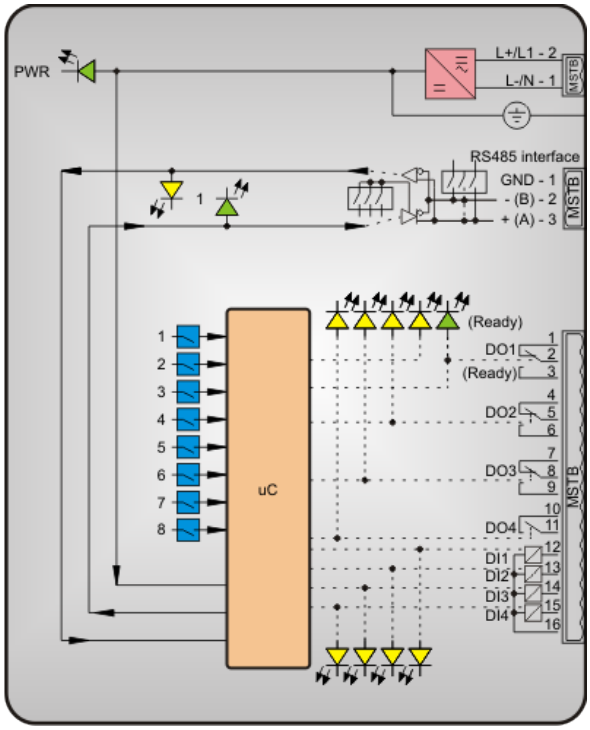
Difference between schematics is in operation of DO1. On left picture DO1 is normal digital output. On right picture DO1 works as device „ready“ indicator. For further details see chapter „HARDWARE DESCRIPTION/IO BOARDS“.

4.6.2 SAU100/x.485.NON.x

x - means any type

For types description see chapter Ordering.





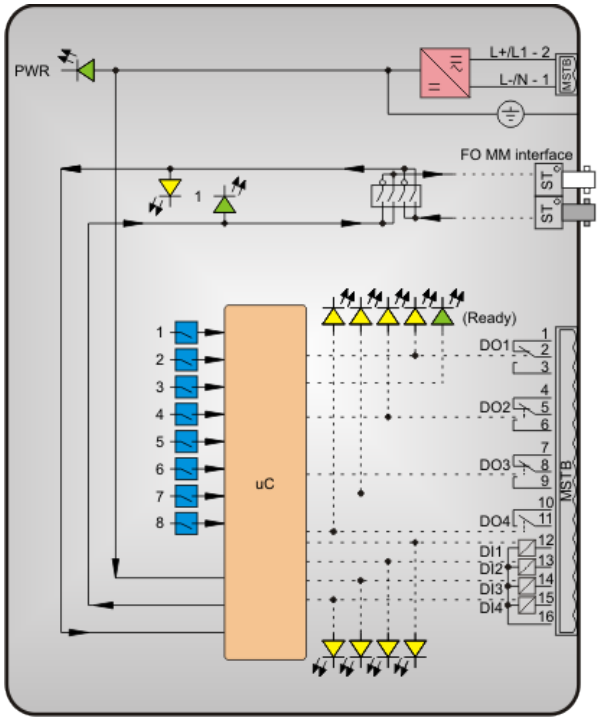
Picture 4.10: (left): SAU100/x.485.NON.IOx schematic
Picture 4.11: (right): SAU100/x.485.NON.IOxR schematic

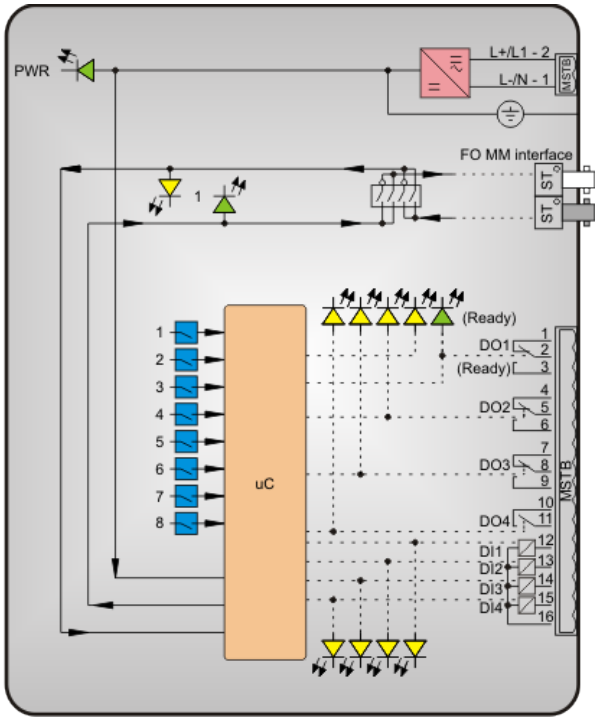
Difference between schematics is in operation of DO1. On left picture DO1 is normal digital output. On right picture DO1 works as device „ready“ indicator. For further details see chapter „HARDWARE DESCRIPTION/IO BOARDS“.

4.6.3 SAU100/x.FOT.NON.x

x - means any type

For types description see chapter Ordering.





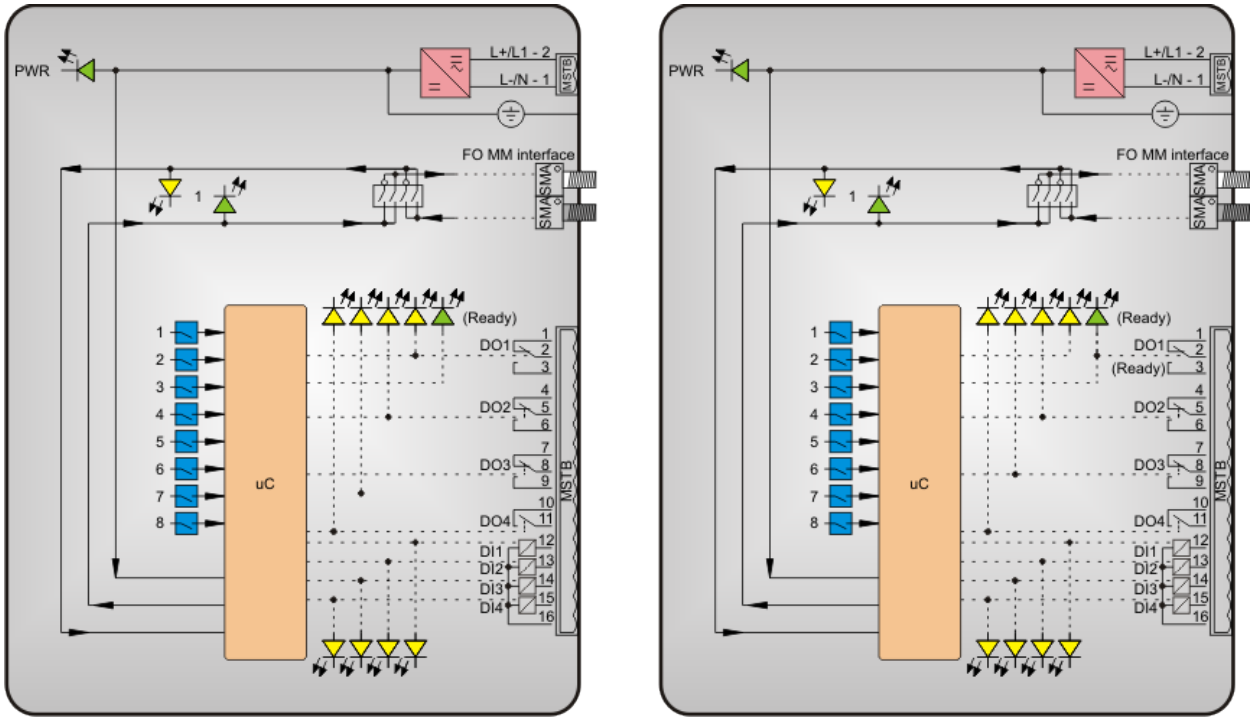
Picture 4.12: (left): STR100/x.FOT.NON.IOx schematic
Picture 4.13: (right): STR100/x.FOT.NON.IOxR schematic

Difference between schematics is in operation of DO1. On left picture DO1 is normal digital output. On right picture DO1 works as device „ready“ indicator. For further details see chapter „HARDWARE DESCRIPTION/IO BOARDS“.

4.6.4 SAU100/x.FOA.NON.x

x - means any type

For types description see chapter Ordering.



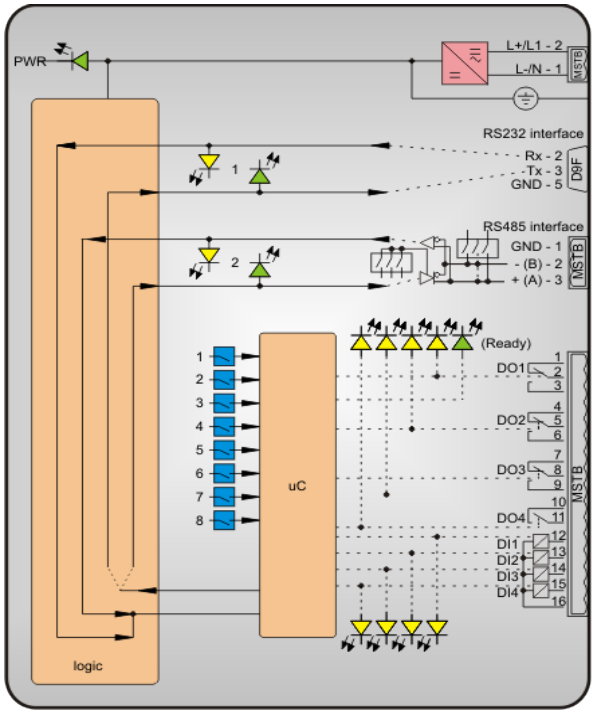
Picture 4.14: (left): SAU100/x.FOA.NON.IOx schematic
Picture 4.15: (right): SAU100/x.FOA.NON.IOxR schematic

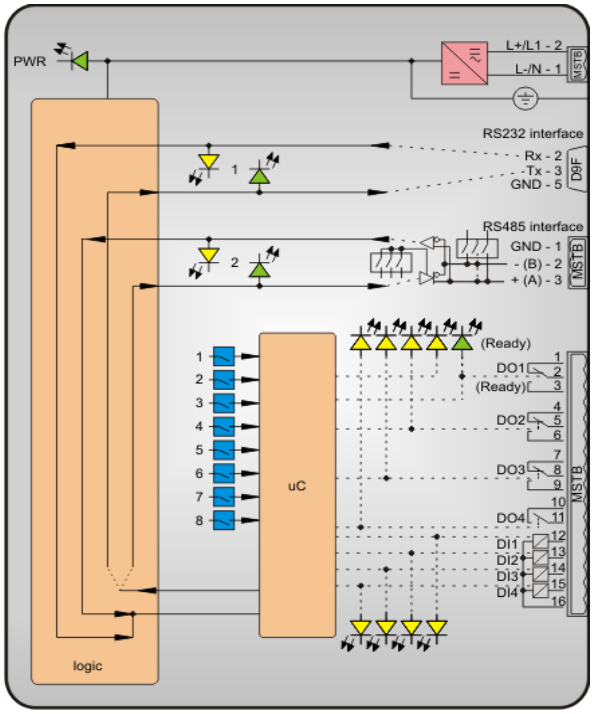
Difference between schematics is in operation of DO1. On left picture DO1 is normal digital output. On right picture DO1 works as device „ready“ indicator. For further details see chapter „HARDWARE DESCRIPTION/IO BOARDS“.

4.6.5 SAU100/x.232.485.x

x - means any type

For types description see chapter Ordering.





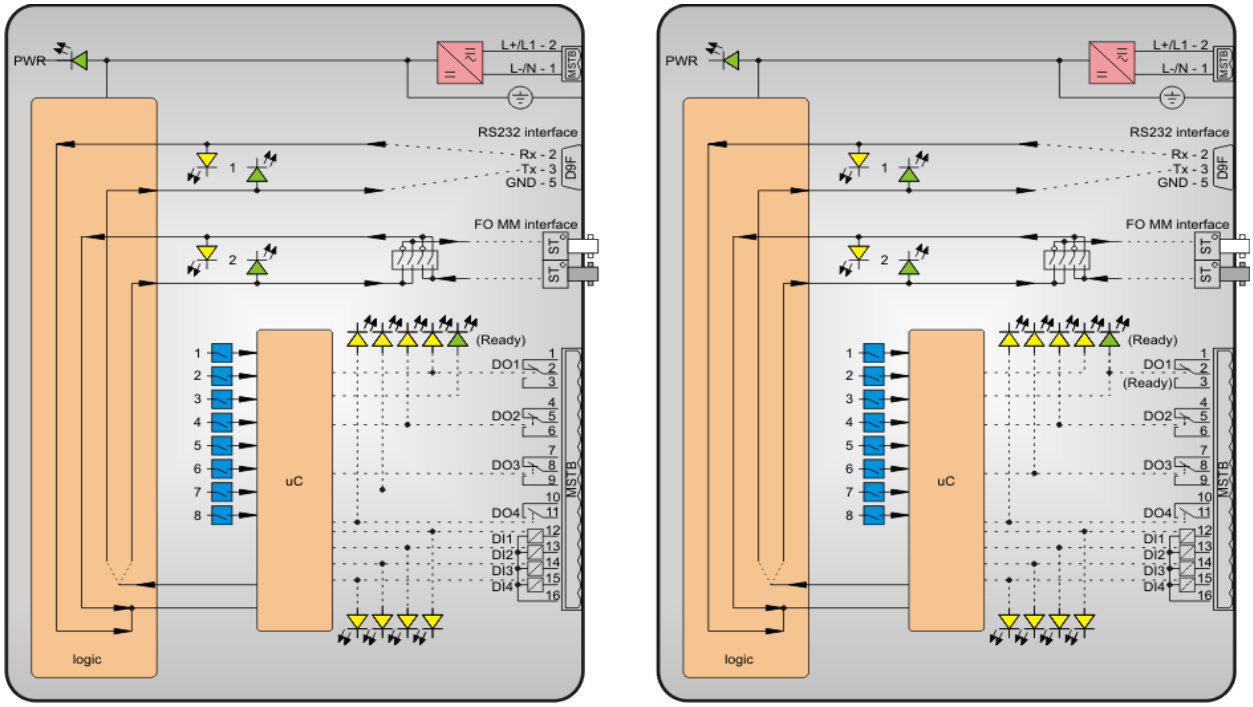
Picture 4.16: (left): SAU100/x.232.485.IOx schematic
Picture 4.17: (right): SAU100/x.232.485.IOxR schematic

Difference between schematics is in operation of DO1. On left picture DO1 is normal digital output. On right picture DO1 works as device „ready“ indicator. For further details see chapter „HARDWARE DESCRIPTION/IO BOARDS“.

4.6.6 SAU100/x.232.FOT.x

x - means any type

For types description see chapter Ordering.



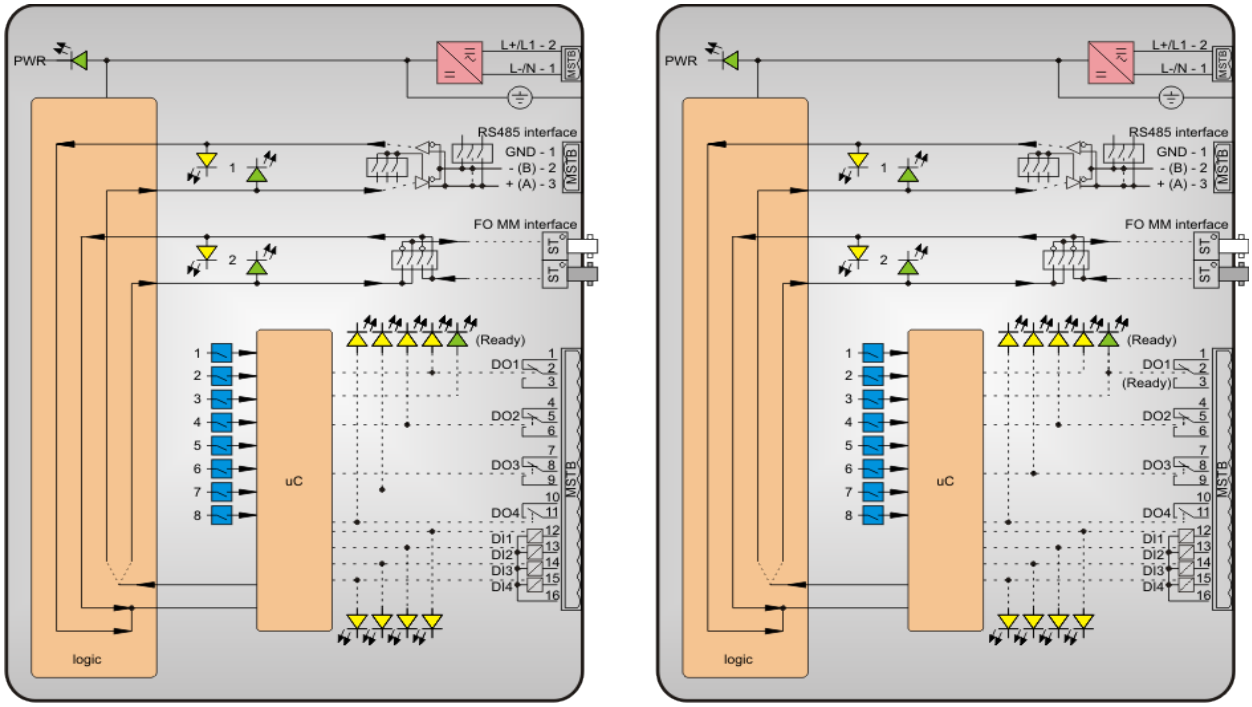
Picture 4.18: (left): SAU100/x.232.FOT.IOx schematic
Picture 4.19: (right): SAU100/x.232.FOT.IOxR schematic

Difference between schematics is in operation of DO1. On left picture DO1 is normal digital output. On right picture DO1 works as device „ready“ indicator. For further details see chapter „HARDWARE DESCRIPTION/IO BOARDS“.

4.6.7 SAU100/x.485.FOT.x

x - means any type

For types description see chapter Ordering.



Picture 4.20: (left): SAU100/x.485.FOT.IOx schematic
Picture 4.21: (right): SAU100/x.485.FOT.IOxR schematic

Difference between schematics is in operation of DO1. On left picture DO1 is normal digital output. On right picture DO1 works as device „ready“ indicator. For further details see chapter „HARDWARE DESCRIPTION/IO BOARDS“.

Because so many device variants exists, shematics for all types of devices are not drawn.

5 INSTALLATION AND DEVICE SETTING

5.1 INSTALLATION

Warning!

Hazardous voltage is present inside the device during operation. Disregarding of safety rules can result in severe personal injury or property damage.

Only qualified personnel may work with described devices after being familiar with warnings and safety notices in this paper and other safety regulations.

Following instruction must be taken into consideration:

- The device must be accessible to qualified personnel only.
- The device is permitted to operate in enclosed housing or cabinet only.
- The device location must be vibration-free.
- The admisible operating temperature must be observed.
- Check the device for damage at unpacking. If device is damaged it must not be installed but It should be send to the manufacturer for repair.
- The device should not be opened.
- The device should be mounted on a 35 mm rail (acc to EN 50022).
- Attach ground wire before attaching power supply. Device must be grounded during operation!
- The power supply of the device should be provided with an external disconnector for the safety isolation and with safety device (fuse) 2AT or 4AT. Both should be mounted close to the device.
- Single core or stranded wire 0.5 – 2.5 mm^2 must be used for power supply connection. If stranded wire is used ferrules must be used to prevent fraying. Recommended stripping lenght is 5 mm.
- The prescribed bending radius of the optical fibre cables must be observed.

5.2 DEVICE SETTING

It is recommended, that device setting is made before device is powered up.

Some device settings are not regarded during operation, but only once after power up! If change during operation is made, disconnect power supply for a few moments (until power LED stops emitting) and connect power supply back. Settings are then accepted.

For further details see chapter „HARDWARE DESCRIPTION/“.

6 COMMISSIONING AND MAINTENANCE

6.1 COMMISSIONING

Warning!

Hazardous voltage is present inside the device during operation. Disregarding of safety rules can result in severe personal injury or property damage.

Only qualified personnel may work with described devices after being familiar with warnings and safety notices in this paper and other safety regulations.

Following instruction must be taken into consideration:

- Device must operate completely assembled! Device must be used as described. No modifications of the device should be made.
- Attach ground wire before attaching power supply. Device must be grounded during operation!
- Check if the power supply voltage complies with device operation voltage.
- Do not open device while it is energized! Hazardous voltage is present inside the device.
- If single mode fiber optic interface is used do not look into the laser beam.

6.2 MAINTENANCE

Device is maintenance-free. Do not use liquids for cleaning the unit. Disconnect power supply before cleaning.

7 TECHNICAL DATA

Power supply (Types: all)		
Input voltage	88-250 V DC	
	70-250 V AC	
Power consumption	DC	3 W
	AC	3 VA
Power supply indicator	green LED marked PWR	
Voltage dips	20 ms	
Connector type	screw type „MSTB“ Phoenix 2pin	
Wire crossection	0.5 – 2.5 mm^2	

Communication port RS232 (Types: **SAU100**/x.**232**.x.x & **SAU100**/x.x.**232**.x)		
Type	RS232	
Direction	full duplex	
Number of ports	1	
Distance	up to 15 m	
Isolation	none; GND earthed	
Connector type	DB9 female	
Lines in	1 (Rx)	
Lines out	1 (Tx)	
Communication indicator	Receiveing	yellow LED marked Rx
	Tranmitting	green LED marked Tx

Communication port RS485 (Types: **SAU100**/x.**485**.x.x & **SAU100**/x.x.**485**.x)		
Type	RS485	
Direction	half duplex	
Number of ports	1	
Distance	up to 1200 m	
Isolation	1000 V DC	
Connector type	„MSTB“ Phoenix 3pin	
Termination	120 Ohm	
Max number of devices on BUS	32	
Communication indicator	Receiveing	yellow LED marked Rx
	Tranmitting	green LED marked Tx

Communication port FOT and FOA (Types: **SAU100**/x.**FOT**.x.x, **SAU100**/x.x.**FOT**.x, **SAU100**/x.**FOA**.x.x & **SAU100**/x.x.**FOA**.x)			
Type	multimode fiber optic		
Wave lenght	820 nm		
Fiber size	50/125 µm, 62.5/125 µm, 100/140 µm, 200 µm		
Optical output power	-18 dB		
Reciver sensitivity	-24 dB		
Laser class	I		
Direction	full duplex		
Input	1 receiver (grey connector)		
Output	1 transmitter (white connector)		
Logic	light ON or OFF in idle state set by switch (see table)		
Echo	no echo possible		
Number of ports	1		
Distance	up to 500 m		
Connector type	STR100/x.FOT.x.x & STR100/x.x.FOT.x		ST
	STR100/x.FOA.x.x & STR100/x.x.FOA.x		SMA
Communication indicator	Receiveing	yellow LED marked Rx	
	Tranmitting	green LED marked Tx	

Digital inputs (Types: all)			
Input voltage (+10 %, -20 %)	**SAU100**/x.x.x.IO4x	**SAU100**/x.x.x.IO1x	**SAU100**/x.x.x.IO2x
	48 V DC	110 V DC	220 V DC
Activation time	2,1 ms max		
Debounce	20		
Scan repetition	0,1 ms		
Connector type	screw type „MSTB“ Phoenix 16 pin		
Wire crossection	0.5 – 2.5 mm^2		

Digital outputs (Types: all)		
Max breaking voltage	440 V ac	
Max current	AC	5 A at 250 V
	DC	5 A at 32 V (resistive bourden)
		1,3 A at 48 V (resistive bourden)
		0,4 A at 110 V (resistive bourden)
		0,35 A at 220 V (resistive bourden)

Digital outputs (Types: all)	
Connector type	screw type „MSTB“ Phoenix 16 pin
Wire crossection	0.5 – 2.5 mm^2

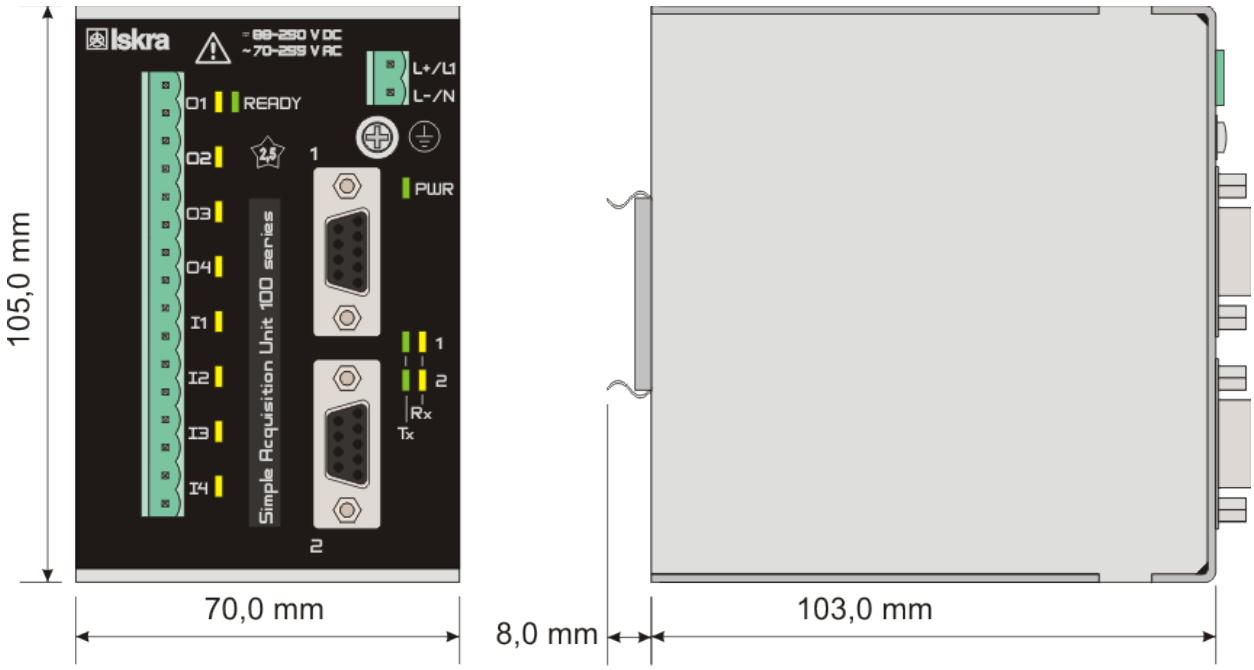
Communication (Types: all)	
Protocol	IEC 60870-5-103 (slave)
Supported responds	link reset, class I, class II, general interrogation, time synhronization, general command
Device address	1 (fixed)
Baud rate	19200 (fixed)
Number of data bits	8 (fixed)
Parity	even (fixed)
Number of stop bits	1 (fixed)

Device IEC 60870-5-103 information table			
Signal description	**Function**	**Information number**	**GI respond number**
digital input 1	240	160	1
digital input 2	240	161	2
digital input 3	240	162	3
digital input 4	240	163	4
digital output 1	200 (*)	160 (*)	NO GI
digital output 2	200	161	NO GI
digital output 3	200	162	NO GI
digital output 4	200	163	NO GI

(*) Valid for SAU100/x.x.x.**IOx** types only! For SAU100/x.x.x.**IOxR** devices, this output indicates device "ready" status!

Device (Types: all)			
Weight	0,5 kg		
Dimensions (see picture)	(H)	(D)	(W)
	105 mm	111 mm + connectors	70 mm
Temperature range	0 °C to +55 °C		
Humidity operating	up to 90 % (noncondensing)		
Enclosure	Material	Al	
	IP	20	
Mount type	standard DIN 35 rail (acc. to DIN EN 50022)		
Class	I		
Overvoltage category	II		

7.1 DIMENSIONS



Picture 7.1: SAU100 dimensions

8 ORDERING

ORDERING CODE: **SAU100 / □ . □ . □ . □ - □ . □**

Power supply:
70-250 V AC or 88-250 V DC ..... HI
30-60 V AC or 38-80 V DC ..... LO

Interfaces:
none (mark second interf. with „NON“ in case that second interf. is not needed) ..... NON
RS232 nonisolated, Rx & Tx support 232
RS485 isolated, half duplex 485
FO multimode ST ..... FOT
FO multimode SMA ..... FOA
USB (one virtual com port)*..... USB
Ethernet (one virtual com port)*..... ETH

Digital input & output:
4 DI (48 V DC), 4 DO (250 V AC, 5 A) IO4
4 DI (110 V DC), 4 DO (250 V AC, 5 A) IO1
4 DI (220 V DC), 4 DO (250 V AC, 5 A) IO2
4 DI (48 V DC), 3 + 1 ready DO (250 V AC, 5 A) IO4R
4 DI (110 V DC), 3 + 1 ready DO (250 V AC, 5 A) IO1R
4 DI (220 V DC), 3 + 1 ready DO (250 V AC, 5 A) IO2R

Software Version:
software version ..... leave empty

Software Revision:
software revision ..... leave empty

* in development

Example: **SAU100 / HI.232.485.IO1R**
is
simple acquisition unit with
- high voltage power supply
- 2 interfaces
  1. interface is RS232
  2. interface is RS485
- 4 110 V DC digital inputs
- 3 DOs + 1 ready DO

Accessories:

Description	Ordering code
- power supply cable with „schuko“ plug, 2 m	421304700030
- communication cable CMU100 RS232 port to PC, 2 m	421304700033
- fiber optic cable ST-ST connector, 2 m	001977263002

For other cable lenghts please contact us.